

REMARKS

Claims 1-26 are pending in the application. The status of the claims is as follows:

| Claims / Section | 35 U.S.C. Sec. | References / Notes |
|------------------|----------------------|--|
| 12-26 | Withdrawn | <ul style="list-style-type: none">Non-elected claims |
| 1-5, 9 | Allowed/Allowable | |
| 6, 7 & 10 | §102(b) Anticipation | <ul style="list-style-type: none">Tingskog (U.S. Patent No. 5,400,899). |
| 8 | §102(b) Anticipation | <ul style="list-style-type: none">Tingskog (U.S. Patent No. 5,351,810). |
| 11 | §102(b) Anticipation | <ul style="list-style-type: none">Mayer, et al. (U.S. Patent No. 6,032,789). |

5 Applicant has canceled the non-elected claims in the present application.

Applicant thanks the Examiner for indicating the allowability of claims 1-5 and 9 in the pending application. Claim 9 has been amended to incorporate the limitations of independent claim 8. Applicant has further amended claims 6-9 to address issues raised by the Examiner and for reasons addressed in more detail
10 below.

Applicant's use of reference characters or drawing figures below is for illustrative purposes only and is not intended to be limiting in nature unless explicitly indicated.

35 U.S.C. §102(b), CLAIMS 6, 7 AND 10 ANTICIPATION BY TINGSKOG '899

15 1. *Claims 6 and 7 have been amended to more specifically describe the claimed invention. Claim 10 is not anticipated by Tingskog because it teaches*

the opposite of what is claimed, namely that the bending stiffness differs from a similarly constructed tubular belt having no longitudinal joint.

In the OA, on p. 2, under numbered paragraph 2, the Examiner rejected claim 6 as being anticipated by Tingskog '899, referring to the marked up 5 drawing figures 3 and 6 as depicting the claimed features.

Claim 6 was originally drafted to encompass an embodiment as illustrated in the present application by, e.g., Figure 7A (although the amended claim 6 should be interpreted to the full breadth permitted and not limited exclusively to the illustration shown in Figure 7A). Applicant has amended claim 6 to more 10 particularly point out what is being claimed, including elements directed to establishing a reference system for defining the claimed features (namely, the longitudinal axis, transverse axis, and height axis). The defined depression has been defined with respect to this reference system, and the claim is also further limited in that the depression is permanently filled with the first prestressed layer. 15 Therefore, claim 6, as amended, is not anticipated by Tingskog '899, nor is claim 6 an obvious variant of this reference because there is no teaching or suggestion of a structure as defined by the amended claim.

The Examiner similarly rejected claim 7 based on the disclosure of Tingskog '899. Claim 7 was originally drafted to encompass an embodiment as 20 illustrated in the present application by, e.g., Figure 8 (although the amended claim 7 should be interpreted to the full breadth permitted and not limited exclusively to the illustration shown in Figure 8). Therefore, Applicant has amended claim 7 to include a similar reference system for defining the features claimed. The amendment clarifies the location of the joining of the first and

second region and thus amended claim 7 is not taught by Tingskog '899, nor is claim 7 an obvious variant of this reference because there is no teaching or suggestion of a structure as defined by the amended claim.

The Examiner, on p. 2 under numbered paragraph 2 of the OA, rejected 5 claim 10 based on the teaching of Tingskog '899 at 2/10-34. Applicant respectfully traverses this rejection.

Claim 10 requires that a bending stiffness of the belt in a plane lying through an interlock of the joint and a centroid of a section of the belt is equivalent to a similarly constructed tubular belt having no longitudinal joint. This 10 is clearly not taught by Tingskog '899—in fact, this reference teaches exactly the opposite, as illustrated by its Fig. 3. As shown and described the bending stiffness of the portion where the joint interlock is present in Tingskog '899 is substantially more rigid than the surrounding belt—this is the very principle that Fig. 3 illustrates: the rigidity contrasted with the flexible surrounding portion.

15 Tingskog '899 describes, in the portion cited by the Examiner, the formation of a flat pocket on one planar edge part for receiving in this pocket the other planar edge part, stating, “[b]y this solution, the two edge parts will be forcedly held together and, owing to the design of the pocket, will behave, like a central part, substantially flexurally rigid in the transfer direction of the belt, and 20 this without any form-fitting locking actions.”

The stiffness of the upper part of closed conveyor belt section that consists of two edge parts is compared with the stiffness of the lower part of the closed conveyor belt that consists of one flat central portion. This comparison is

made in the transfer direction of the closed conveyor belt, i.e. stiffness in a plane of the central part of the belt or in a plane of the two edge part when they are located together with help of the pocket on the end of one of them.

The operative forces in Tingskog '899 are substantially different from

5 those required by claim 10. First, the greatest shear force in a beam under bending stress is located in the midst of its height, and two edge parts do not have any shear connections in the pocket, so a summation of stiffness of these two parts each having height approximately as much as one half of the height of the central part (a moment of inertia for the rectangular section is $I=bh^3/12$,

10 where "b" is the width and "h" is the height of the rectangular) is roughly four times less than stiffness of the single solid lower portion.

Furthermore, Tingskog '899 teaches that hinge parts of his closed belt are "resilient so as to pivot the edge parts outwards away from a position in which they are folded over the central part." [col. 1, lines 27-32, and col. 5, lines 12-16].

15 Even though Tingskog '899 does not specify a value of those forces directed outward, i.e. out of the center line of the closed conveyor belt, they do not contribute to compress two edge portion being fold together. To the contrary, these forces produce a negative effect on the summation of the stiffness of two edge part in comparison with the stiffness of the central portion in transfer

20 direction of the belt.

As required by claim 10, the stiffness of the closed belt in the plane lying through the interlock of the joint and a centroid of a section of the belt is equal to a solid section because there is no shear force between two part of longitudinal

joint (in direction of a referenced plane) and because both parts of the longitudinal joint are compressed against each other due to prestressed feature of the belt itself.

The bending stiffness of the belt in Tingskog '899 is clearly greater in the 5 joint region, otherwise, the joint region illustrated in its Figure 3 would have a curvature similar to the rest of the belt, and would not essentially be a straight line, as is shown.

For these reasons, Applicant respectfully asserts that the amendments to claims 6 and 7 and arguments with respect to claim 10 clearly distinguish over 10 Tingskog '899.

35 U.S.C. §102(b), CLAIM 8 ANTICIPATION BY TINGSKOG '810

2. *Claim 8 has been amended to more specifically describe the claimed invention, namely, the orientation of the flap portions.*

In the OA, on p. 3, under numbered paragraph 3, the Examiner rejected 15 claim 8 as being anticipated by Tingskog '810, referring to the marked up drawing figure 3.

Claim 8 was originally drafted to encompass an embodiment as illustrated in the present application by, e.g., Figure 4C (although the amended claim 8 should be interpreted to the full breadth permitted and not limited exclusively to 20 the illustration shown in Figure 4C). Applicant has amended claim 8 to more particularly point out what is being claimed, including elements directed to establishing a reference system for defining the claimed features (namely, the longitudinal axis, transverse axis, and height axis).

The divided portion of the belt and the orientation of the flaps has been defined with respect to this reference system therefore, as amended, is clearly distinguished from Tingskog '810.

35 U.S.C. §102(b), CLAIM 11 ANTICIPATION BY MAYER

5 3. *Claim 11 is not anticipated by Mayer since Mayer contains not description whatsoever about a route curvature.*

In the OA, on p. 3, under numbered paragraph 4, the Examiner rejected claim 11 as being anticipated by Mayer, referring to figure 1, the lower left and right portions of the belt.

10 Applicant respectfully traverses this rejection on the basis that Mayer contains no disclosure whatsoever with regard to a route curvature, i.e., the curvature of the path along which the belt travels. What is disclosed by Mayer is simply a curvature of a belt along a longitudinal axis—nothing is provided that is related to an advantageous ratio of the path (route) of curvature for the belt in 15 comparison to its diameter. The advantage of the present belt is that it permits the belt to move in a relatively tight curve to minimize space in a particular installation.

For the above reasons, Applicant contends that the amendments and arguments made above adequately serve to distinguish the present invention 20 from the art cited against it, and respectfully request that the 35 U.S.C. §102 rejections be withdrawn from the application.

CONCLUSION

Inasmuch as each of the objections have been overcome by the amendments, and all of the Examiner's suggestions and requirements have been satisfied, it is respectfully requested that the present application be reconsidered, 5 the rejections be withdrawn and that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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